Remarks

Entrance of this amendment and allowance of pending claims 8-20 are respectfully requested.

By this paper, independent claims 8 & 15 are amended to more particularly point out and distinctly claim certain aspects of the present invention. Specifically, these claims are amended to emphasize that the meta data associated with the first request corresponds to data stored and maintained separately therefrom by a data object manager of a storage subsystem of the computer environment. Further, these claims specify that the meta data is information about the data itself, and that the request manager processes the meta data associated with the first request and automatically informs the data object manager of an anticipated, second request based thereon. This enables the data object manager to prepare for the anticipated second request prior to receipt thereof. Support for the amended claims can be found throughout the application filed. For example, reference paragraphs [0017], [0018] & [0030] of the specification. No new matter is added to the application by any amendment presented.

Claims 8-20 were rejected under 35 U.S.C. § 102(e) as being anticipated by a commonly assigned patent to Degenaro et al. (U.S. Patent No. 6,654,766; hereinafter Degenaro). This rejection is respectfully traversed to any extent deemed applicable to the claims presented herewith, and reconsideration thereof is requested for the reasons set forth below.

Initially, Applicants' invention set forth in independent claims 8 & 15 employs meta data associated with a first request from the requester. This meta data corresponds to data stored and maintained separately from the meta data by a data object manager of the storage subsystem of the computer environment. A careful reading of Degenaro fails to uncover any discussion of meta data *per se*. The phrase meta data does not appear in Degenaro. For an alleged teaching of this aspect of Applicants' invention, the Office Action references column 2, lines 1-25 of Degenaro. Column 2, lines 1-25 of Degenaro state:

> In yet another aspect of the invention, the time-based cache manager comprises a mechanism to "update" the cache. In one embodiment, the cache manager will determine an update_time for a given cached subset of objects based, in part, on start_times and end_times of objects that are members of a cached subset. Whenever a request for the

query is received before the last_time of the collection, the cache manager determines whether the cached subset of objects is still valid by checking its update_time against the current_time. If the cached subset of objects has expired (e.g., the current_time is greater than the update_time) the cache manager automatically updates the cached subset with objects in the collection (without having to contact the server) by removing objects that have expired and adding objects having elapsed start_times and non-elapsed end_times, and then assigning a new update_time for the cached subset.

In another aspect of the present invention, if the cache manager determines that a cached subset of objects has expired (e.g., the current_time is greater than the update_time) and that the current_time is either less than the first_time or greater than the last_time of the corresponding collection (superset), the cache manager will query a server to update the collection of objects and update the cached subset of objects from the updated collection.

The above-noted teachings of Degenaro describe a time stamp which includes a start_time and an end_time for data objects in a cached subset of objects. The start_time and end_time refer to the time within which the data object is valid within the cache. *The start_time and end_time stamps do not relate to the data itself, but rather to the validity of the data within the cache.* In contrast, Applicants' recited meta data is information about the data itself. Examples of meta data include a data object type, name of file associated with the set of disk blocks, length of a file, list of blocks that constitute a file, information about user access permissions to the data, and the date and time a file was created or updated. Since Degenaro does not discuss or employ meta data *per se,* Applicants respectfully submit that their processing set forth in independent claims 8 & 15 is patentable over the teachings of Degenaro.

In addition, Applicants recite that the above-noted meta data corresponds to data stored and maintained separately from the meta data by a data object manager of a storage subsystem. The time-based cache management module 140 in Degenaro is equated to Applicants' data object manager. Without acquiescing to this characterization, Applicants respectfully submit that there is no discussion that the start_time and end_time stamps of Degenaro (analogized in the Office Action to Applicants' recited meta data), are stored and maintained separately from the corresponding data. In fact, Degenaro expressly teaches the opposite. In column 2 of Degenaro, the start_times and end_times of the data objects *are members of a cached subset* (see column 2, lines 5 & 6). Thus, in Degenaro, the start_time and end_time are part of cached data,

along with the data itself. Thus, to the extent the time stamps are analogized to meta data, they are clearly not stored and maintained separately from the data by a data object manager of the storage subsystem as recited in Applicants' independent claims. Thus, there is no anticipation of Applicants' recited invention based on the teachings of Degenaro.

Still further, Applicants recite, responsive to receipt of the first request at the request manager, processing the meta data associated with the first request and automatically informing, by the request manager, the data object manager of an anticipated, second request to be subsequently received by the data object manager from the requester. The *anticipated, second request to be subsequently received by the data object manager is at least partially ascertained from the processing of the meta data* associated with the first request. No similar functionality is provided by Degenaro.

With respect to Applicants' recited means (responsive to receipt of the first request at the request manager, for automatically informing, by the request manager, the data object manager of an anticipated, second request) column 5, lines 44-58 of Degenaro are cited. Applicants respectfully submit that these lines are simply not relevant to the processing at issue in Applicants' independent claims 8 & 15. Column 5, lines 42-58 of Degenaro teach:

> It is to be understood that each of the system components of FIG.1 may reside on a single machine, device or platform in a network. Alternatively, the system components may be distributed over a network. By way of example, assume that the system is designed to cache query results in a database application. The system may comprise a client application (with the cache) that issues queries to a server (which manages the database) that is remote from the client. To reduce the number of queries to the server, the client stores one or more sets of query results (collection subsets) in the local cache. In the following discussion of preferred embodiments, it is assumed that the system manages a cache that stores collection subsets of objects comprising database query results. It is understood, however, that one of ordinary skill in the art may readily envision collections of other object types (instead of query results) that may be employed.

The above-noted language does not relate to processing meta data associated with the first request, and does not relate to automatically informing, by the request manager, the data object manager of an anticipated, second request to be subsequently received by the data object

manager from the requester. These lines of Degenaro note that a client issues queries to a server that is remote from the client. To reduce the number of queries to the server, the client stores one or more sets of *query results (collection subsets)* in the local cache. The query results are just that, results of a prior query. Degenaro describes grouping of query results into a collection subset for better time management of the query results. This teaching is not relevant to the processing recited in Applicants' independent claims at issue. There is no processing of meta data associated with a first request in Degenaro. There is no automatically informing, by a request manager, to the data object manager of an anticipated second request that is to be subsequently received by the data object manager, *wherein the anticipated, second request is at least partially ascertained from processing of the meta data associated with the first request by the request manager.* For at least these reasons, Applicants respectfully submit that there is no anticipation of the independent claims presented based upon Degenaro.

Still further, Applicants' independent claims recite that the data object manager prepares for the anticipated second request, prior to receipt thereof. There is no similar teaching or suggestion in Degenaro. The Office Action cites column 3, lines 48-68, concerning the discussion of a collection superset or collection subset. However, as noted above, Degenaro expressly defines the collection subset as one or more sets of *query results.* These results are a result of processing the query (i.e., the request having been made). The collection superset discussion allows for an action to be taken on the query results in the superset employing a single update cache request. This processing is not relevant to Applicants' recited protocol. There is no preparing for an anticipated second request *per se* in Degenaro, let alone preparing for an anticipated second request, *prior to receipt thereof,* from a requester which issued a first request *based on processing meta data associated therewith.* For this further reason, Applicants respectfully submit that there is no anticipation of the recited processing based upon the teachings of Degenaro.
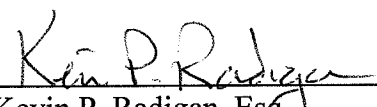
For at least the above-noted reasons, Applicants respectfully request reconsideration, and withdrawal of the anticipation rejection to the independent claims presented based upon Degenaro. The dependent claims are believed allowable for the same reasons as the independent claims, as well as for their own additional characterizations. For example, dependent claims 10 & 17 recite that the preparing by the data object manager includes *noting that data associated*

with the anticipated, second request is not to be cached. In accordance with Applicants' invention, this noting occurs prior to receipt of the anticipated second request. No similar facility is taught or suggested by Degenaro. There is no description in Degenaro of noting that data associated with any request is not to be cached, let alone data associated with an anticipated, second request, which has not been received as yet.

All claims are believed to be in condition for allowance, and such action is respectfully requested.

Should the Examiner have any reservation about the patentability of the claims presented, however, Applicants' undersigned representative respectfully requests an opportunity for an Examiner Interview to discuss the claims in the hope of advancing prosecution of this application.

Respectfully submitted,

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